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Rosalie David (ed.) 2008 (April). *Egyptian Mummies and Modern Science*. Cambridge, Cambridge University Press. 304pp. ISBN 97805218665791. £UK 60.00; US \$100.00.

Rosalie David, Professor and Director of the KNH Centre for Biomedical Egyptology, University of Manchester, has for over 30 years led the study of Egyptian mummies and associated materials at Manchester. Starting in 1973 when the Manchester Egyptian Mummy Research Project was established, multidisciplinary research on mummies has grown and flourished and, in 2003, the KNH Centre was set up in the Faculty of Life Sciences. This has led to more recent applications of scientific techniques to mummified tissue, including the development of a Mummy Tissue Bank as a valuable resource for such research. This book 'provides the first opportunity to present the complete picture of the Manchester team's more recent studies' with its aim to 'demonstrate how scientific studies on mummies can provide new insights into the ancient Egyptian's attitudes to life and death' (p. xix-xx); its aim is fulfilled.

The book is divided into five parts: Introduction to the scientific study of mummies (aims, methods and developments of the Project), Diet, disease and death in ancient Egypt: diagnostic and investigative techniques (studies on human and animal remains), The treatment of disease in ancient Egypt (comparison of data from the Project with literary evidence, along with consideration of therapeutic efficacy), Resources for studying mummies (establishment and role of the Mummy Tissue Bank), and finally the future of biomedical and scientific studies in Egyptology (summary of contributions and future research directions). The studies described are considered in the wider context of mummy studies and Egyptology and are, essentially, a "show case" of more recent work in Manchester.

The 'Introduction' has two chapters, both by David. 'Background to the Project' documents the longstanding interest in Egyptian mummies going back to the Renaissance. It then describes the first Egyptian mummy autopsies at Manchester by Margaret Murray, back in 1908, followed by a discussion of the Manchester Mummy Project created shortly after David's appointment in 1972 as curator of the Egyptology Collection at the Manchester Museum. A multidisciplinary approach was emphasised from the outset with the use of available techniques of analysis. Three phases of the Project are described (1973-1978; 1979-1995, and 1995 to present). One of the major parts of the final phase has been research on schistosomiasis in ancient and modern Egypt, described later in Chapter 8; this particular project led to the formation of the International Ancient Egyptian Mummy Tissue Bank. The second chapter overviews Egyptian mummies, including their historical background, mummification and their environmental context.

'Diet, disease and death' has nine chapters (Imaging, Endoscopy, Dental health, Histology, Palaeopathology literature review, Immunocytochemistry, DNA, Analytical methods, and Facial reconstruction); this is, not surprisingly, the "meat" of the book and is contained in around 160 pages. Many of the chapters provide an historical perspective to the particular techniques used, and most are well illustrated (including very well produced colour images of histological sections of mummy tissue in the centre of the

book). "Palaeopathology" provides a useful perspective on how mummification procedures and materials used can have an effect on the ability to recognise pathological conditions, and it gives a summary of methods mummification techniques. The chapter then describes some of the diseases that have been recognised in both skeletons and mummies from a global perspective. At this point it would have been better to only concentrate on Egyptian mummy evidence in a book devoted to Egyptian mummies. Because the chapter tries to take a wide view of evidence of disease, it cannot (and does not) take an all encompassing and critical view of the relevant literature, which makes for a rather weak part of the book. For example, the section on plague reviews ancient DNA research from France (1998 and 2002) but this work has been questioned in more recent years, while the section on leprosy does not even mention the published evidence in both mummified and skeletal remains from Egypt; finally, the section on tuberculosis is limited to 12 lines and defers to a book published in 2003. The aDNA analysis chapter surveys the potential and limitations of such analyses and provides examples of studies on Egyptian mummies. While interesting and informative, I was disappointed not to see a more critical review of the methodologies used and the real need for better standardisation of methods and procedures between laboratories, as described in Cooper and Poinar (2000, in *Science*). The chapter on facial reconstruction emphasises how Manchester has been at the forefront of developing this method for "bringing to life" the facial appearance of ancient Egyptians. It charts the methods applied and how facial reconstruction has been used in Egyptology from depictions of ancient people's faces to showing the effects on the face of trauma and disease.

'Treatment of disease' has three chapters (the Ancient Egyptian Medical System, Intoxicants, and Pharmacy). Sources for Egyptian medicine are the focus of the first chapter, incorporating archaeological, written and artistic evidence, along with evidence in human remains; the latter section, albeit limited compared to the other data, could have usefully described in more detail some of the direct evidence for treatment such as splinting fractures (with references). The last chapter in this section (Pharmacy) has informative data on how therapeutically effective drugs used in ancient Egypt might have been. 'Resources' has two chapters on the Mummy Tissue Bank and on Conservation techniques. The Bank developed from the concept of tissue banking to support medical research, and 'was the first formal project, on an international scale, to seek material from Egyptian mummies held in collections outside Egypt' (p.240). It has pioneered the collection of mummy tissue samples for future analyses over the last 11 years that it has been established, and currently holds 1400 samples. 'The Future' concludes the book and is written by David; of all the contributors, she is the most qualified to predict the future from what has gone before. The presence of the Centre for Biomedical Egyptology, a graduate research programme, and a masters course in Biomedical and Forensic Studies in Egyptology, all at the University of Manchester, provide a base from which future research will undoubtedly develop in this field. The strong interdisciplinary links and the research resource available, along with collaborations in Egypt, show good potential for future research and training in the field.

Overall the book provides a good overview of the state of research on Egyptian mummies, as seen from the Manchester perspective. Some of the (more technical)

chapters will be less accessible to the general reader than others. The images supporting each chapter in general are useful for supplementing the text but sometimes are of poor quality and not very clear. At £60/\$100 US (hardback), this seems a lot of money for a rather a small book. However, it will be of interest to scholars working in Egyptology in general (students and established academics alike), to researchers working on mummified remains, and on Egyptian mummies in particular, to historians of medicine, and to members of the interested educated public. Studies of ancient Egypt, and its mummies in particular, have always held an interest and fascination for many; this book will be no exception to that rule.

Charlotte Roberts
Department of Archaeology
Durham University